

# ATOMIC ENERGY *newsletter*

THE FIRST AND ONLY ATOMIC NEWS SERVICE

ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

December 16th, 1952  
Vol.8...No.9

Dear Sir:

A possible new uranium area has now been located in Northern Manitoba. It is at Dion Lake, about 12 miles northeast of Herb Lake. The first organization into the area was Cyprus Corp., which through its wholly-owned Canadian subsidiary, Cyprus Exploration Corp., Ltd., has acquired, by staking and option, approximately 200 claims. This is the American firm's first venture in Canadian mining. Noranda and Thompson Mines have each come into the area, to the immediate east of the Cyprus holdings, and considerable local staking is reported. (Other URANIUM mineral news, page 3 this Letter.)

The graduate fellowship program in radiological physics, of the USAEC, has now been expanded by adding a west coast training location. Two others are already in operation. The University of Washington, Seattle, and the USAEC's Hanford Operations Office will jointly conduct the new west coast program for the 1953-4 academic year. Programs will be continued at Vanderbilt University, Nashville, Tenn., in cooperation with Oak Ridge National Laboratory, and at the University of Rochester, in cooperation with Brookhaven National Laboratory, Long Island. Inquiries concerning the program should be directed to the Oak Ridge Institute of Nuclear Studies, Oak Ridge, which administers the program for the USAEC.

Radioactive iodine in polyethylene "squeeze" tubes is now being shipped by Tracerlab, Inc., Boston nuclear products firm. In use, the tip of the tube is plunged into the proper amount of water, and the contents squeezed out. Ease in handling, and elimination of breakage enroute has been achieved, the firm reports. Plax Corp., W. Hartford, Conn., supplies the plastic "squeeze" tubes. (Other PRODUCT news, page 2 this Letter.)

Vanadium Corp. of America plans a uranium mill at Hite, southeastern Utah, officials of that firm stated in New York last week. Jesse Johnson, New York director of the USAEC's raw materials division, has stated that two plants to be erected in Utah and New Mexico will cost \$1½ to \$3 million each. Vanadium Corp. has said that it has solved the problems connected with milling copper-uranium ore. (Other BUSINESS news page 5 this Letter.)

The cosmotron (at Brookhaven National Laboratory), which is the world's most powerful nuclear particle accelerator, was officially dedicated yesterday in special ceremonies at the Laboratory. Design of the cosmotron began in 1947, and most of the construction was completed in 1951. On May 20, 1952, the machine speeded up protons to an energy of 1.3 Bev, and June 10th, exceeded 2 Bev. Modifications are now being completed which will allow the machine to deliver 2 to 3 billion electron-volts on a routine basis for research beginning in 1953.

Civilian defense against atomic attack is feasible if the task is made of "manageable proportions", and the vulnerability of the urban target is reduced, is the conclusion of a study of civil defense in the nation. These conclusions are embodied in a forthcoming report (Project East River) of the Regional Plan Association.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear work...

FROM THE MANUFACTURERS-Scintillation count rate meter, which may also be used for geiger and proportional counting; model CRM-500. This model incorporates three basic features: (1) A fast pulse amplifier, with a rise time of 0.25-microseconds and a variable amplification up to 1500, (2) An electronic discriminator, and (3) A regulated high voltage supply which is variable from 500 to 1800 volts and is regulated to 0.005% per one volt change in line voltage between 95-and 100-volts. The count rate circuit is said to be a tested circuit which combines ruggedness with dependability. It is normally supplied with counting rate multiples of 1000, 5000, 10000, 20000, and 50000 counts per minute, but can also be supplied with scales up to 500,000 counts per minute. ---Nuclear Research & Development, Inc., St. Louis 14, Mo.

Scintillation detector, model DS-1, is designed for efficient gamma-ray counting in clinical and laboratory applications. This new detector is provided with a thallium-activated sodium iodide crystal and has a plateau length of approximately 200-volts. It is equipped with a removable directional shield. With the shield in place, it is said that efficiencies of 33% or greater are obtainable using Cobalt-60, and 40% or greater using Iodine-131. Model DS-1 has a built-in preamplifier which provides an output pulse in excess of one-quarter volt, making its use possible at the G-M input of any scaler or count-rate meter. The sensitivity of model DS-1 is said to be such that tracer amounts of gamma emitters may be used in metabolism and other studies without serious radiation hazard.---Nuclear Instrument & Chemical Corp., Chicago 10, Ill.

Goggle, designed to protect against ionizing radiation. These goggles will be made with radiation-absorbing glass which can also find application as peephole shields in areas containing radiation-producing materials or apparatus. Two types of such glass are to be made; the formulae utilized will be those developed at the University of Pittsburgh by a research group there. One will be a tungsten glass to absorb high energy X-rays and gamma particles. As produced (using the University of Pittsburgh-developed formula), its absorbing power is said to be 50% higher than any present X-ray shielding glass. It is a clear glass, but of course can be darkened for added protection against visible intense light. The second glass contains cadmium and is neutron absorbing. Its absorption power is said to be one-third that of pure cadmium sheet. Thus, a layer of this glass three times that of an adequate cadmium shield will offer the same shielding power with the advantage of being transparent.--L. J. Houze Convex Glass Co., Pittsburgh, Pa.

Static eliminator, utilizing polonium. Sheet material passed between the two sets of brushes in this new assembly of the company's "Staticmaster" eliminator is brushed free from lint and dust. At the same time the sheet material is subjected to alpha rays from polonium carrying grids above and below the work. The alpha bombardment is said to effectively destroy the capacity of the material to attract and hold lint and dust. Two sizes will span sheet material measuring 3- and 6-inches in width.---Nuclear Products Co., 10171 E. Rush St., El Monte, Calif.

AT ATOMIC CITIES & CENTERS...

National Reactor Testing Station, Idaho Falls, Ia. -Boiler plant facilities for the chemical processing plant here are to be designed by M. A. Nishkian & Co., Long Beach, Calif., who have been awarded a lumpsum contract to serve as architect-engineers on this job. The work marks the progress which has been made on this plant, which will "rework" and thus make nuclear materials re-usable after they have become contaminated in the various nuclear reactors here.

A "hot" cell, and "hot" cell building are shortly to be erected in the Materials Testing Reactor area. The cell will permit visual examination, modification, adjustment, and repair of experimental equipment after irradiation in the reactor. The cell also will permit the removal and insertion of irradiated samples in experimental equipment, the placing of exposed samples into shipping containers for transport to other facilities, and the transfer of complete experimental assemblies to shielded containers for further handling outside of the cell. In addition, physical and mechanical properties of materials will be tested in the cell. The "hot"cell, to be constructed inside the cell building, will be formed of special shielding concrete and lined throughout with steel.

RAW MATERIALS...radioactive & other minerals for nuclear work...

UNITED STATES- A new ore buying station has now been set up at Edgemont, South Dakota, for the purchase of uranium-bearing ores. It is being operated under a USAEC contract by The American Smelting & Refining Co., which also operates ore purchasing stations at Monticello and Marysville, Utah, and at Shiprock, New Mexico. This new Edgemont depot will provide a market for the uranium ores of the Black Hills region which were first discovered in the Fall of 1951. It is expected, therefore, that establishment of this depot will stimulate the exploration, development, and production of uranium in southwestern South Dakota, and northeastern Wyoming. Ores of this region are, in the main, carnotite or roscoelite, and provision is made in purchasing them for the high calcium carbonate content which may be present.

A solution of the problems of assuring uranium miners the right to mine deposits in public land areas previously covered by Federal oil and gas leases has now been worked out by the USAEC and the Department of the Interior. A lease will be executed by the miner with the USAEC, and this will permit miners, who have staked ground on pre-existing gas and oil leases, the right to produce and sell uranium ore and be certified for USAEC bonus payments. From observation of operations in the uranium fields, the USAEC's Grand Junction, Colo., office believes that the search for, and the production of uranium, from lands covered by such leases, will be encouraged.

CANADA- The uranium discovery made by Gunnar Gold Mines at St. Mary's Channel, in the Lake Athabasca region, now appears to be a find of unusual interest. On the basis of preliminary results from ten bore holes, the discovery zone has been estimated at 425-ft. long and up to 400-ft. wide. Encouraged by the first results, a new program involving a minimum of 10,000 feet of drilling will be undertaken the first of the year, the management advises.....Trenching on the Melville Lake property of Baska Uranium Mines has outlined a possible orebody 100-ft. long and 6.0 ft. wide, with visible pitchblende in each of five trenches, a progress report for the management states. While sampling results were somewhat erratic, some high values were revealed, according to the report.....Latest reports from Rix-Athabasca Uranium Mines are that the fifth in a series of flat diamond drill holes being fanned out from the new first level station established at the workings has given an encouraging intersection. This showed a 112-ft. core length averaging 0.35% uranium oxide (\$50.75 a ton) believed to represent a true width of about 56-ft.....A Winter drilling program by Basalt Uranium & Exploration Co. is planned at its Martin Lake property in the Beaverlodge area, Northern Saskatchewan. Over 2,300-ft. of drilling has already been done in the southeastern part of the property, and results are said to have been encouraging. The company has acquired a second group, of approximately 500-acres, situated north of the easterly end of Eldorado, adjoining north of Tazin mines. It is also acquiring a third group, northwest of Martin Lake, and adjacent to Goldfields Uranium.

IMPORTANT SCIENTIFIC MEETINGS...nuclear subjects...

New York, N.Y.- The American Society of Mechanical Engineers, meeting here a fortnight ago, heard a "Report on a Liquid Metal Heat-Transfer and Steam-Generation System for Nuclear Power Plants", by T. Trocki and D. B. Nelson, of Knolls Atomic Power Laboratory. Also discussed were "Electromagnetic Pumps for Liquid Metals", by C. F. Cage, Jr., and "Mechanical Liquid Pumps for High Temperature", by P. M. Clark, of Knolls Atomic Power Laboratory. The "Development of Special Pumps and their Power Supply Valves, Bearings, and Instrumentation for Liquid Metals", was treated by E. F. Brill, Allis-Chalmers Mfg. Co.

Chicago, Ill.- A change in the atomic energy act to allow private industry to enter the field of atomic energy development was urged by Charles A. Thomas, president, Monsanto Chemical Co., St. Louis, at a panel discussion on industrial uses of atomic energy, held here a fortnight ago, sponsored by the Chicago Association of Commerce and Industry, and the University of Chicago. The discussion followed ceremonies commemorating the tenth anniversary of the first successful nuclear reactor. Arthur H. Compton, now Chancellor of Washington University, and one of the leaders in the development of the atomic bomb, predicted that by the end of this century uranium would have supplanted coal as a source of commercial power, and that coal would be used chiefly as a source of organic chemicals.



FIRE PROBLEMS OF ATOMIC ENERGY IN PEACE AND WAR; From an address by Edward J. Kehoe, Chief, Fire & Accident Br., USAEC, New York Operations, delivered before National Fire Protection Association meeting, Houston, Tex., December 3rd, 1952.

Three major areas of radiation danger have evolved in the last decade:

- (1) Plants and laboratories associated with atomic energy operations, which have very much the same safety problems as are encountered in the chemical and construction fields--plus the risks added by the factor of radiation.
- (2) The effects of an atomic bomb explosion which are fairly similar in nature to the destructive effects of conventional high explosives (of course greater in degree)--plus the added effects of radiation.
- (3) The most popular use of radioactive material in industry and medical diagnosis and therapy which is in the form of radioactive isotopes, is the third area.

I shall endeavor to evaluate the dangers of, and formulate workable solutions for, some of these new hazards, when fire problems are encountered.

The majority of the facilities using radioactive isotopes or processing radioactive materials present so little radiation hazards that municipal fire departments may handle the situation without undue risk.

I recommend the following general precautions to be taken when fighting a fire involving radioactive materials:

- 1.-Wear breathing apparatus on any serious fire. Remember we most frequently find these materials in chemical plants and laboratories where fortunately modern fire fighting practice now utilizes breathing apparatus as standard equipment.
- 2.-Avoid unnecessarily disturbing or stirring up any materials and smashing laboratory glassware and apparatus. Fire fighting operations should be conducted as carefully as possible. Use of water should be minimized to prevent the washing away and running off of radioactive materials.
- 3.-Avoid smoking, eating, or drinking in the fire area. This will practically eliminate the possibility of swallowing radioactive material.
- 4.-Avoid handling materials with the bare hands, using shovels or gloves if the presence of radioactive materials is suspected.
- 5.-Avoid remaining in the fire area any longer than necessary. However, the fireman who is exposed to radiation on rare occasions can take many, many times the daily tolerance limit without ill effects.
- 6.-Personnel who have operated at the fire should take a shower as soon as practicable.

Please note that all of these precautions are by no means unique to the atomic energy field, and would be just as appropriate in fighting a fire in a chemical plant.

Let us now consider the atomic bomb. The high air burst is probably the most effective use of a bomb against a city, since it causes maximum destructive effects over the widest area. It will produce the most casualties, the greatest damage, and the largest fires, but will leave no radiation hazard.

The problem of plant protection involves standard fire fighting techniques--but is complicated by the fact that so many of these fires started by an atomic bomb occur simultaneously.

Fire protection engineering comprises fire prevention, fire control, and fire extinguishment.

For fire extinguishment, under air attack conditions, much less dependence can be placed on the municipal fire department, and much more must be placed on the plant fire brigade. It is good practice in peacetime to have a plant fire protection organization. It is absolutely necessary to have one for wartime defense.

In summation, the best defense against the wartime fire problem for the individual plant is to make the plant as independent as possible from the fire protection viewpoint, and this can be done by bringing the plant's peacetime fire defenses up to the highest standards of modern fire protection engineering.

NOTE: References cited by Mr. Kehoe included: "Employee Organization for Fire Safety"; "First Book on Fire Safety in the Atomic Age"; available from National Fire Protection Association, Boston, Mass., and "National Security Factors in Plant Location", available from National Security Resources Board, Washington, D. C.

BUSINESS NEWS...in the nuclear energy field...

OIL INDUSTRY TO AID IN SEARCH FOR URANIUM MINERALS- A plan whereby exploration geophysicists searching for oil, check drill cores for radioactivity higher than normal, indicating radioactive minerals, was announced last fortnight in Los Angeles by Curtis H. Johnson, president of the Society of Exploration Geophysicists. The plan is being presented to oil companies as a business proposition with potential profits. Mr. Johnson pointed out that now the principal obstacle to discovering new supplies of uranium is the limited range of detection instruments. When six inches of earth lie over a uranium deposit they cut in half the chances of its ever being discovered, he stated. Further, there's only one-thousandth as much chance if there's another four feet of soil on top of the radioactive deposit, Mr. Johnson added. It was explained that the oil industry has 10,000 trained men exploring for oil by drilling over 4,000 shallow test holes each day in the United States and Canada. These holes average 75- to 100-ft. in depth, and are used for seismic testing of underground structures. Under the plan, material excavated from these holes will be tested for radioactivity by special crews, working with the seismographic crews. The plan also calls for material from the first 500 feet of the 1,000 or more wells drilled weekly to be checked for radioactivity while oil companies will equip their surface geologists with detection devices for surface radioactivity detection. Mr. Johnson stated that oil operators are being told that at small additional expense, involving new instrument purchases and time by scientific employees, they have a chance to help national defense and at the same time make a profit. To develop the plan, the Advisory Committee on Radioactive Mineral Exploration has been formed. It is jointly sponsored by the Society of Exploration Geophysicists, the American Association of Petroleum Geologists, and the Society of Economic Paleontologists and Mineralogists.

PEOPLE & PROJECTS- New members recently elected to the board of directors of Nuclear Instrument & Chemical Corp., Chicago, include Dr. Harry K. Ihrig, vice-president in charge of research, Allis Chalmers Mfg. Co., Milwaukee; John Cleaver, president, Cleaver-Brooks Co., Milwaukee; and James M. Phelan, partner, A. T. Kearney & Co., Chicago. Nuclear produces instruments for the handling and measuring of radioactive materials, and manufactures several radioactive chemicals.

Tracerlab, Inc., Boston nuclear instrument firm, has now made William A. Kerr general manager of that firm. Kerr, formerly general sales manager, is also a vice-president of Tracerlab and a director of the firm's x-ray subsidiary, Keleket X-Ray Corp., Covington, Ky.

Several industrial research projects to be undertaken by Nuclear Research & Development, Inc., St. Louis, in the new laboratories which they now occupy, will be headed by Marshall R. Cleland, who recently joined the staff of that firm as senior research physicist. Dr. Cleland has been associated with the Radiation Physics Laboratory, betatron section, at the National Bureau of Standards as a research physicist for the past year and a half.

Recently appointed assistant chief process engineer for Catalytic Construction Company, Philadelphia, is Francis W. Winn, formerly of the research and development department of Socony-Vacuum Oil Co. Mr. Winn's duties with Catalytic in their Philadelphia office will encompass the three broad fields engaged in by the company on petroleum, atomic energy, and chemical projects. His responsibilities include research and development, process design, and theoretical correlations.

PROGRESS MADE ON ELECTRICAL GENERATING PLANTS FOR NUCLEAR PROJECTS- Tennessee Valley Authority's steam generated electrical capacity, which is undergoing expansion, in large part to supply various nuclear projects, continues its rapid progress. At the Shawness River Steam Plant, excavation and concrete placing for units 5 to 10 goes ahead at a rapid rate. Erection of powerhouse structural steel at Kingston Steam Plant was resumed early in November.

Sincerely,

The Staff,  
ATOMIC ENERGY NEWSLETTER

December 16th, 1952